CLAIMS

1. A method of assessing oxidant stress by measuring polymerization of proteins.

2. The method according to claim 1, wherein said measuring step further comprises measuring nitrated, polymerized proteins.

3. The method according to claim 2, wherein said measuring step includes measuring polymerized proteins selected from the group consisting essentially of polymerized prostaglandin H_2 synthase, nitrated-polymerized prostaglandin H_2 synthase, polymerized cytochrome c, nitrated-polymerized cytochrome c, 30 kDa cytochrome c, nitrated 30 kDa cytochrome c, 45 kDa cytochrome c, and nitrated 45 kDa cytchrome c.

4. A marker for oxidant stress comprising a polymerized protein.

5. The marker according to claim 4, wherein said protein is nitrated.

6. The marker according to claim 5, wherein said marker is selected from the group consisting essentially of polymerized prostaglandin H_2 synthase, nitrated-polymerized prostaglandin H_2 synthase, polymerized cytochrome c, nitrated-polymerized cytochrome c, 30 kDa cytochrome c, nitrated 30 kDa cytochrome c, 45 kDa cytochrome c, and nitrated 45 kDa cytchrome c.

7. The marker according to claim 4, wherein said marker is a disulfide bonded polymerized protein.

8. The marker according to claim 7, wherein said marker is a nitrated disulfide bonded polymerized protein.

9. The marker according to claim 8, wherein said marker is selected from the group consisting essentially of disulfide bonded polymers of prostaglandin H_2 synthase and nitrated, disulfide bonded polymers of prostaglandin H_2 synthase.

10. A kit for use in assessing oxidant stress, said kit comprising an assay for detecting polymerized proteins.

11. The kit according to claim 10, wherein said assay further includes means for detecting nitrated polymerized proteins.

12. The kit according to claim 10, wherein said assay further includes means for detecting the formation of disulfide bonded polymerized proteins.

13. The kit according to claim 10, wherein said assay further includes means for detecting the formation of nitrated disulfide bonded polymerized proteins.

14. A method of assessing oxidant stress by measuring nitrization of cytochrme c.

15. A method of assessing oxidant stress by measuring the formation of disulfide polymerized proteins.

16. The method according to claim 15, wherein said measuring step includes measuring the formation of nitrated-disulfide polymerized proteins.

17. A method of measuring oxidizing power of oxidizing molecules by measuring the amount of oxidized glutathione (GS-SG) formed from reduced glutathione (GSH).

18. The method according to claim 17, wherein the oxidizing molecule is peroxynitrate.

19. A method of measuring quenching power of reducing agents against oxidizing power of oxidizing molecules by measuring a dimerized molecule (oxidized) of a reducing agent formed from a monomer (reduced) of the reducing agent.

20. The method according to claim 19, wherein the oxidizing molecule is peroxynitrite.

21. The method according to claim 19, wherein the reducing agent is GSH.

22. A method of lowering oxidant stress by administering to a patient an effective amount of at least one reducing agent which increases GSH levels in a pharmaceutically acceptable carrier.

23. The method according to claim 22, wherein said administering step includes administering a reducing agent which is glutathione.

24. The method according to claim 22, wherein said administering step includes administering an agent for preventing polymerization of proteins.

25. The method according to claim 22, wherein said administering step includes administering an agent for preventing nitration of proteins.

26. The method according to claim 22, wherein said administering step includes administering an agent for preventing polymerization and nitration of proteins.

27. The method according to claim 22, wherein said administering step includes administering an agent for preventing disulfide bonded prostaglandin H_2 synthase dimer formation.

28. The method according to claim 22, wherein said administering step includes administering an agent preventing nitrated, disulfide bonded prostaglandin H_2 synthase dimer formation.

29. A pharmaceutical composition for lowering oxidant stress, said pharmaceutical comprising an effective amount of a reducing agent which increases GSH levels for reducing oxidant stress and a pharmaceutically acceptably carrier.

30. The pharmaceutical according to claim 29, wherein said reducing agent is glutathione.

31. The pharmaceutical according to claim 29, wherein said reducing agent prevents polymerization of proteins.

32. The pharmaceutical according to claim 29, wherein said reducing agent prevents nitration of proteins.

33. The pharmaceutical according to claim 29, wherein said reducing agent prevents nitrated-disulfide prostaglandin H_2 synthase dimer foundation.